

CLAIMS

1. Photolinker macromolecule, which is a saccharide-based
5 polymer that contains photoactivable groups apt to be activated at a wavelength of at least 320 nm, and sulfur-containing groups, the sulfur-containing groups being selected from the group consisting of thiol (-SH), thioacid (-COSH), dithioacid (-CSSH), sulfide (-S-) and disulfide (-SS-), attached to a metallic substrate.

10 2. Macromolecule of claim 1, covalently bonded to a biomolecule in an active form.

3. Macromolecule of claim 1 or 2, wherein the polysaccharide is selected from the group consisting of agarose, dextran, carrageenan, alginic acid, starch, and cellulose, and a derivative thereof.

15 4. Macromolecule of any of any of claims 1 or 2, wherein the polysaccharide is dextran, in particular amino-dextran or carboxymethyl-dextran.

20 5. Macromolecule of claim 4, wherein the saccharide is amino-dextrane or carboxy-dextrane, the total amino functions or carboxy functions available for subsequent functionalization with both the photoactivatable groups and the sulfur-containing groups being 0.01 to 0.5 mol per mol glucose monomer.

25 6. Macromolecule of any of any of the preceding claims, wherein the photoactivable groups are selected from the group consisting of aryl-diazirines and benzophenones.

30 7. Macromolecule of any of the preceding claims, wherein the photoactivable groups are selected from the group consisting 4-(p-azidosalicylamido)butylamine, N-hydroxysuccinimidyl-4-azidosalicylic acid, p-o-phenone-4-maleimide, 4-benzylbenzoic acid succimidyl ester, or -azidophenyl-isothiocyanate, benzophenone-4-isothiocyanate, benz 3-(trifluoromethyl)-3-(m-isothiocyanophenyl) diazirine

8. Macromolecule of any of the preceding claims, wherein the metal is selected from the group of aluminum, copper, gold, palladium, platinum and silver.

9. Sensing surface of biosensor, which comprises a
5 macromolecule of claim 2.

10. Microarray, which comprises a macromolecule of claim 2.

11. Nanoparticle, nanoassembly or microparticle comprising a macromolecule of claim 2.

12. Method of preparing a photolinker macromolecule
10 of claim 1 which comprises derivatizing a polysaccharide by multiple substitution with photoactivable groups and sulfur-containing groups, and attaching the derivatized saccharide to a metal by chemisorption or sulfur-metal complex formation processes.

13. Method of preparing a macromolecule of claim 2 which
15 comprises submitting a mixture of a photolinker macromolecule of claim 1 and a biomolecule in an active form to a photoreaction at wavelength of at least 320 nm, in the absence of any incident light below 320 nm.